REMARKS

Claims 1, 6-13, 17-29, 42-47 and 59-81 are cancelled; claims 2, 14, 30, 31, 33, 34, 38, 48, 50, 51 and 55 are amended; and claims 2-5, 14-16, 30-41 and 48-58 are pending in the application.

Claims 1 and 45 are objected to because of typographical informalities. Claims 1 and 45 are cancelled from the application. Applicant notes, however, that the subject matter of claim 1 has been incorporated into claims 2 and 14, and Applicant has corrected the typographical informalities identified by the Examiner prior to such incorporation. Applicant thanks the Examiner for the careful reading of the claims which identified the typographical informalities.

The pending claims stand rejected as being unpatentable over Paek (U.S. Patent 6,774,023) in view of Nakamura (JP357194548A). Applicant respectfully requests reconsideration relative to the claims that remain pending in the application.

Referring first to claim 2, such recites a method of forming a low electrical resistance metal silicide in which a metal-containing layer is formed directly against a first metal silicide layer, and subsequently metal of the metal-containing layer is converted to a second metal silicide. The claim further recites that a silicon-containing layer is formed directly against the metal-containing layer prior to converting metal of the metal-containing layer, and that the conversion of the metal of the metal-containing layer to the second metal silicide layer comprises incorporation of silicon from the silicon-containing layer into the second metal silicide layer.

Claim 2 is amended to add a recitation that the silicon-containing layer which is formed directly against the metal-containing layer is formed on an opposing side of the metal-containing layer from the first metal silicide layer. Such amendment is supported by the originally-filed application at, for example, Fig. 1 where a silicon-containing layer 22 is shown formed on opposing side of a metal-containing layer 20 from a metal silicide layer 18. Accordingly, such amendment to claim 2 does not introduce "new matter" into the claim.

Amended claim 2 is believed allowable over the cited references for at least the reason that the references do not show or suggest the claim 2 recited formation of a metal-containing layer directly against a first metal silicide layer, in combination with the claim 2 recited formation of a silicon-containing layer directly against the metal-containing layer on an opposing side of the metal-containing layer from the metal silicide layer and subsequent conversion of the metal-containing layer to a second metal-silicide layer, where such conversion comprises incorporation of silicon from the silicon-containing layer into the second metal silicide layer.

The Examiner cites Paek for disclosing a process in which a metal-containing layer (for example, layer 11 of Paek's Fig. 2A or layer 13 of Paek's Fig. 2B) is formed over a metal silicide layer (for instance, layer 10 of Paek's Fig. 2A is disclosed as being tantalum which is formed into tantalum silicide, and layer 12 of Paek's Fig. 2B is disclosed as being tantalum silicide), and subsequently the metal-containing layer is converted to metal-silicide (for instance, Paek shows a layer 13 in Fig. 2B which is a titanium silicide formed from the metal-containing layer 11 of Fig. 2A). Applicant notes, however, that the only source of

silicon during conversion of the layer 11 of Fig. 2A to the layer 13 of Fig. 2B is polycrystalline silicon layer 9, which is a polycrystalline silicon layer beneath the tantalum layer 10. In other words, Paek does not show or suggest a silicon layer formed on an opposing side of the metal-containing layer 11 from the tantalum silicide layer 12, and utilized during conversion of the titanium of layer 11 to titanium silicide. The Examiner recognizes this distinction between Paek and Applicant's original claim 2, and accordingly cites Nakamura to show that it was known in the art to form a silicon material against a metal film, and to subsequently convert the metal film to metal silicide. Applicant respectfully submits, however, that the combination of Nakamura with Paek does not render the subject matter of claim 2 obvious.

Regardless of whether or not Nakamura shows that it was known in the art to form silicon against metal, and to subsequently convert the metal to metal silicide by reaction of the metal with the silicon, such is not a teaching that there would be an advantage to utilizing a silicon-containing layer in the processing of Paek. The methodology of Paek specifically shows only one polycrystalline silicon layer utilized in such processing, and shows such silicon layer being separated from the metal-containing layer which is to be formed into the second metal silicide layer by the first metal silicide layer. In other words, Paek specifically shows that the metal which will ultimately be formed into a metal silicide layer analogous to the second metal silicide layer recited in claim 2 is not directly against a polycrystalline silicon layer, but rather is spaced from such silicon-containing layer by an underlying metal silicide analogous to the claim 2 recited first metal silicide layer. Paek is implying that there is plenty of silicon migrating from the single silicon-containing layer (9 of

Paek's Figs. 2A and 2B) to fully convert the metal-containing layer (11 of Paek) to a metal silicide. Accordingly, the addition of a second silicon-containing layer on top of the metal-containing layer 11 of Paek would introduce an additional process step and additional complexity into the Paek process which Paek implies is unnecessary by showing that the disclosed process utilizing only a single silicon-containing layer is sufficient for accomplishing the desired conversion of the metal-containing layer 11 of Fig. 2A to the metal silicide layer 13 of Fig. 2B. Accordingly, it would not be obvious to modify the teachings of Paek by addition of an additional silicon-containing layer on top of the metal-containing layer 11 of Fig. 2A, regardless of any teaching in Nakamura or any other cited reference that it is known in the art to form metal silicide from metal formed directly against silicon.

Applicant notes that the only teaching of a process in which a silicon-containing layer is formed on one side of a metal-containing layer, a metal silicide layer is formed on an opposing side of the metal-containing layer, and metal of the metal-containing layer is then converted to a second metal silicide layer through incorporation of silicon from the silicon-containing layer into the second metal silicide layer is within Applicant's specification. Accordingly, it would appear that the basis for the Examiner's proposed modification of Paek to form a silicon-containing layer on an upper surface of the metal layer 11 is hind-sight reconstruction of Applicant's invention, rather than any teaching amongst the cited references. Accordingly, Applicant believes that claim 2 is allowable over the cited references, and requests such allowance in the Examiner's next action.

Claims 3-5 depend from claim 2, and are therefore allowable for at least the reasons discussed above regarding claim 2.

Claims 14, 30, 31 and 48 are amended to contain subject matter similar to that discussed above regarding claim 2 of methods in which silicon-containing layers are formed on one side of a metal-containing layer and metal silicide is formed on an opposing side of the metal-containing layer, and the metal-containing layer is subsequently converted to metal silicide. Accordingly, claims 14, 30, 31 and 48 are believed allowable for reasons similar to those discussed above regarding claim 2, and applicant therefore requests formal allowance of such claims in the Examiner's next action.

Claims 15, 16, 32-41 and 49-58 depend from the above-discussed claims 14, 31 and 48, and Applicant therefore requests formal allowance of such dependent claims in the Examiner's next action.

Pending claims 2-5, 14-16, 30-41 and 48-58 are believed allowable for the reasons discussed above, and Applicant therefore requests that the Examiner's next action be a Notice of Allowance formally allowing such claims.

Respectfully submitted,

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